



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

D412-664-203TRN
Job Sheet 168962-C

Tel (613) 632-5200

Part No: D412-664-203TRN

Job Qty: 1 ea

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/28/17

Job Tracking No:

Due Date: 12/8/17

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV F IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 Removed polish EC verified by: DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	12/7/17	12/7/17	0.00	0.00	Start Up Crosstubes		PMP
100	Mori Seiki	1 pcs	12/7/17	12/7/17	3.21	1.33	Mori Seiki TL-40		PMP
110	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		PMP
120	Mori Seiki	1 pcs	12/7/17	12/7/17	0.00	1.67	Mori Seiki TL-40		PMP
130	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		PMP
140	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC8		PMP
145	Crosstubes	1 pcs	12/7/17	12/7/17	0.00	0.25	Crosstube		GP
150	HandFXtube	1 pcs	12/8/17	12/8/17	0.00	0.92	HandFinish5		SA 18-04-04
160	QC	1 pcs	12/8/17	12/8/17	0.00	0.00	QC7		GP
170	Packaging	1 pcs	12/8/17	12/8/17	0.00	0.00	Packaging3		GP
180	QC21-SA	1 Ea	12/8/17	12/8/17	0.00	0.00	QC21		GP

Part Op 100 - 1-Fill tube with sand & install plugs 412-203 on both ends as per Folio FA166 2-Face both sides of tube 3-Turn first Descriptions: taper section on both side as per Folio FA166 4- blend transition lines using belt sander with 60 grit sandpaper

120 - 1-Turn second taper on both sides as per Folio FA166 2- Blend transition lines using belt sander with 60 grit sandpaper. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stylus

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- handfinish X-TUBE INSIDE AND OUT

170 - LOCATION : LG014

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6009-129	1	107	0	0

B123 942

Part Specifications

Specifications could not be found.

Plex 11/28/17 5:37 AM Dart.lajeunesse.marie

DART AEROSPACE LTD		Work Order: 168962-C
Description: Crosstube Assembly (412 High Aft)		Part Number: D412-664-243
Inspection Dwg: D412-664-243 Rev: F		Page 1 of 2

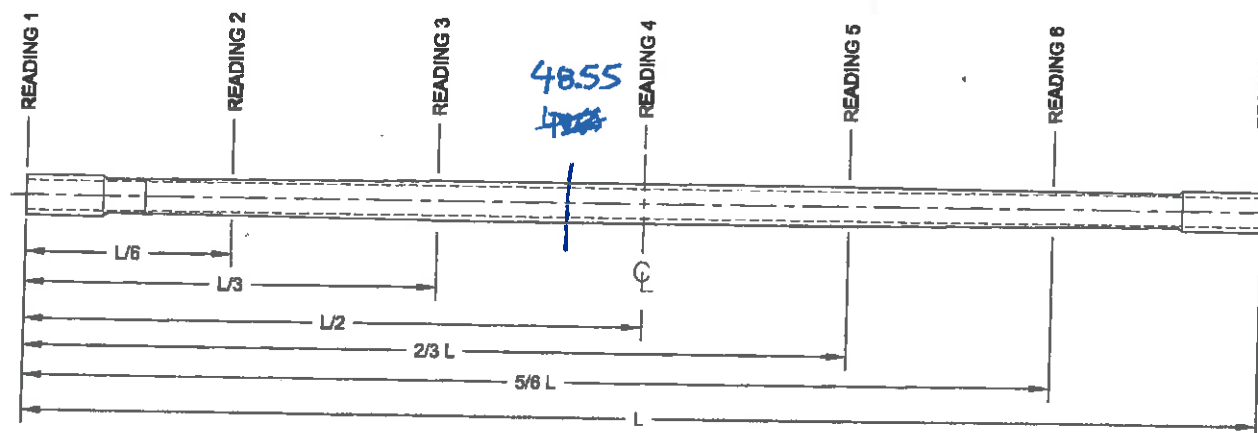
FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.684	+0.005/-0.000	2.689	✓		BLADE mic 2"-3"
	2.748	+0.005/-0.000	2.753	✓		"
	2.884	+0.005/-0.000	2.889	✓		"
	3.019	+0.005/-0.000	3.024	✓		BLADE mic 3"-4"
	3.163	+0.005/-0.000	3.168	✓		"
	3.308	+0.005/-0.000	3.313	✓		"
	3.429	+0.005/-0.000	3.434	✓		"
	2.990	+0.005/-0.000	2.994	✓		VERN 08
	2.618	+0.005/-0.000	2.623	✓		BLADE mic 2"-3"
	0.200	+/-0.010	.203	✓		VERN 08
	R0.063	+/-0.010	.063	✓		RG
	R0.500	+/-0.010	.500	✓		RG
	4.971	+/-0.030	4.990	✓		VERN 08
SIDE B	2.684	+0.005/-0.000	2.689	✓		BLADE mic 2"-3"
	2.748	+0.005/-0.000	2.753	✓		"
	2.884	+0.005/-0.000	2.889	✓		"
	3.019	+0.005/-0.000	3.024	✓		BLADE mic 3"-4"
	3.163	+0.005/-0.000	3.169	✓		"
	3.308	+0.005/-0.000	3.313	✓		"
	3.429	+0.005/-0.000	3.434	✓		"
	2.990	+0.005/-0.000	2.994	✓		VERN 08
	2.618	+0.005/-0.000	2.623	✓		BLADE mic 2"-3"
	0.200	+/-0.010	.201	✓		VERN 08
	R0.063	+/-0.010	.063	✓		RG
	R0.500	+/-0.010	.500	✓		RG
	4.971	+/-0.030	4.993	✓		VERN 08
	124.100	+/-0.020	124.100	✓		TAPE

15-2-7

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Inspection Dwg: D412-664-243 Rev: F		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	370	370	368	368	.002	0.073"
READING 2 L= 20.68	246	287	365	331	.119	
READING 3 L= 41.37	419	444	529	509	.110	
READING 4 L= 62.05	619	614	642	645	.031	
READING 5 L= 82.93	432	472	522	483	.090	
READING 6 L= 103.42	262	309	355	313	.093	
READING 7 L= 124.1	367	371	373	369	.006	
Side @ 48.55	506	508	580	567	.074	Calibration Result
Side @ 48.55	509	541	576	542		Actual Block Thickness: 100-750 SiteScan 250 Measured Thickness: 100-750

Measured by: PMP	Audited by: JW	Preliminary Approval:
Date: 2018-01-12	Date: 18-02-27	Date:

Rev	Date	Change	Revised by	Approved
A	04.06.16	New Issue (P/O D412-664-203)	KJ/JLM	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	07.05.08	Tolerance updated for dimension 4.971	KJ/JLM	
D	10.02.02	Dimension 124.100 was 124.09	KJ	
E	12.06.04	Wall thickness form added	KJ	
F	14.06.24	Dwg Rev updated	KJ	

Item	Qty	Part Number	Description
1	X	D412-864-243	CROSS TUBE ASSEMBLY (412 HIGH AFT)
2	1	D8008-128	CROSS TUBE
3	2	D3898-083-570	RUBBER CUSHION
4	1	D2898-1	SUPPORT
5	2	D3189-1	CHAFFING SHIELD
7	4	MS21920-28	CLAMP
8	2	MS21920-30	CLAMP (OR MS21920-32)
9	AR	SCOTCHWELD DP460	EPOXY ADHESIVE, 3M SCOTCHWELD
10	AR	PROSEAL 890 B-2	SEALANT

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D8008-128
FINISHED LENGTH = 124.1080 020 (BEFORE BENDING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART OSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART OSI 005 4.2
MASK OUTSIDE OF CROSS TUBE AS SHOWN (2N C6-2, HATCHED AREA)
PAINT OUTSIDE PER DART OSI 005 4.2
AFTER PAINTING, REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES: PER DART OSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PIN D412-864-243 AND B/N ON INSIDE OF CUFF PER OSI 044 8.4 (VIBRATING STYLUS)
- 7) WEIGHT: 47.0 LB
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. DO NOT GRIND TUBE AFTER SHOT PEEN.
- 10) WHEN TRANSITIONING TO STOCK MAT'L, RUN CUTTER OFF PART, BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 11) BENDING
BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7% (BASED ON O.D.) IN LOWER HALF OF R30 BEND AND 8% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSS TUBE PER OSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPT INSPECTION.
- 13) INSTALL D2898-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCHWELD DP460 PER OSI 015.
- 14) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3898-083-570 RUBBER CUSHIONS TO SECURE THE D2898-1 SUPPORT ON TOP SIDE OF THE CROSS TUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSS TUBE.
- 15) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEAL 890 INSIDE CONCAVE SURFACE OF D3189-1 CHAFFING SHIELD ONTO CROSS TUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSS TUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 16) TORQUE CLAMPS ON D2898-1 SUPPORT 80 TO 100 IN-LB. TORQUE CLAMPS ON D3189-1 CHAFFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVES HAVE CURED FOR 24 HOURS.

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WORK ORDER
NO. 468962-C

RELEASED
2014-05-26

F	NOTES RE ORGENSEN, SCOTCHWELD WAS MAJOR DEFECT. ADD RETORQUE (AS-1) REMOVE ABRASION STRIP. ADD 1.53 WIDE (C6-2) (C6-1) CHAFFING SHIELD NOW 1.53 WIDE (C6-2) (C1-3) CHG CUFF TOL. (02-41) CLAMP FLIPPED TO PREVENT CHAFFING (B7-2, B7-3) INCORP. DEO 5/24	CP	14.04.01
E	REORGANIZE VIEWS AND REORGANIZED DRAWING TO CURRENT STANDARDS. RELOCATED FLAG #8 PER PAR 08-106 (2N AG-3). ADD TOLERANCE (2N 86-3, C4-3, C6-3 & C6-3) MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	09.08.30
D	REMOVE D2898-800-1081, ADD D2782-089 & MS208080D 6398, MS21920-32 WAS MS21920-30	PH	07.03.09
C	ADD HOLES FOR COMPATIBILITY WITH BHT/A	MB	06.10.27
B	ADD HOLES FOR COMPATIBILITY WITH BHT/A	PH	05.02.04
A	NEW ISSUE	PH	01.10.17
DESIGN	DESIGN	DATE	
DRAWN	D	DRAWING NO.	DART AEROSPACE LTD
CHECKED	D	HAWKESBURY, ONTARIO, CANADA	
MFG. APPR.	D	DA12-864-243	REV. F
DE APPR.	D	CROSS TUBE ASSEMBLY (412 HI AFT)	SHEET 1 OF 4
DATE	14.04.01	SCALE	NTS